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HOW TO PHOTOGRAPH TREE DISEASES IN THE FIELD: AN ILLUSTRATED GUIDE

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In view of the fact that many tree diseases are nondescript by nature, photography is an extremely valuable recording tool to the forest pathologist. This publication is designed for the forest pathologist with only a limited working knowledge of photography. Each section outlines the simplest techniques which will yield professional quality photographs. It is indeed a problem that conditions may not be right for photography when the pathologist needs to photograph the specimen. Provisions have been made to explain which conditions are best and how to deal with poor conditions. However, it should be kept in mind that the best photographs are made under the best conditions.

There are a variety of techniques that are just as effective as those outlined in this paper. Therefore, this should be used as a guide only that can supplement your knowledge on forest disease photography.

CAMERA EQUIPMENT FOR THE PATHOLOGIST

----- 35mm camera body which has the listed features, shutter speeds from B to 1/500, mirror lockup, internal light meter (which reads through the lens), X synchronization for electronic flash, tripod socket and a rubber eyecup

----- 50mm 1.8 lens and lens shade

----- 24mm 2.8 lens and lens shade

----- 85-205mm zoom lens of good quality and name brand (Exact range of focal lengths are not critical.)

----- A bellows with a focusing rail

----- Two small internally automatic extension tubes of about 12mm and 20mm extension.

----- Two small flash units, one with a slave unit

----- A good heavy tripod, weighing around 9 pounds with individually spreading legs which are capable of sitting flat on the ground

----- A 12-inch cable release

----- An 81 B filter

----- Two reflectors made of crinkled aluminum foil glued onto a matboard

FILM

Kodachrome film and processing by a reliable manufacturer are recommended for all work. ASA 25 should be used when the subject is nonmoving--when moving is a problem, use ASA 64.

PHOTOGRAPHING MAIN STEM AND BRANCH DAMAGE

Equipment

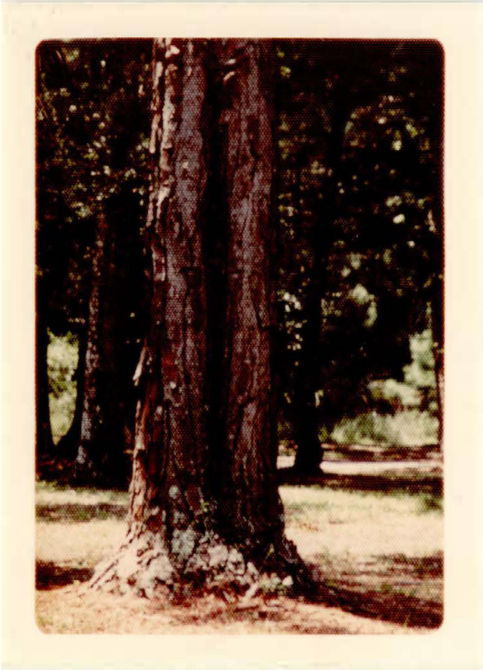
Use the zoom lens at a focal length of 105-200 range. For small branches, use extension tubes or the bellows to crop in close enough to make the disease the dominant part of the photo. Also, use the tripod, a lens shade, and cable release.

Light

If possible, shoot on a hazy or lightly overcast day, using the 81 B filter.

Example 1.--Black knot of black cherry taken on an overcast day using an 81 B filter.

If you are shooting on a bright day, try to shoot on the shady side of the stem, again using the 81 B filter. If the damage is on the bright side of the stem, either fill in the shadows with reflectors (example 2), shade the entire part of the stem being photographed (example 3) or diffuse the sun through clear plastic (example 4).



Example 2.--Scar on pine with black lighting using an 81 B filter.

Example 3.--Fungal conk on pine with reflectors used on the shaded side of the tree.

Example 4.--Hypoxylon canker on oak taken with diffused sunlight.

Composition

Never place a vertical stem exactly in the center of the frame (example 5). Do not place it too far to one side either (example 6). Place it just off center (example 2). Place horizontal and diagonal branches just off center too (example 1).

Example 5.--Scared pine placed in center of frame.

Example 6.--Scared pine placed too far left of center.

Notes

If movement is a problem with a branch, tie it down. When shooting the shaded side of a main stem on a sunny day, move in close to get an exposure reading--point meter from the bright background.

PHOTOGRAPHING FOLIAGE DISEASES

Equipment

Use the zoom lens at a focal length of 105-175. Use the bellows with enough extension to make the affected leaf fill the frame (example 7).

Example 7.--Insect gall on oak leaf filling the frame.

If a section of foliage needs to be photographed, use the 50mm lens. If a section of foliage needs to be photographed and the rest of the tree must be included, use the wide-angle lens placing the damaged foliage in the foreground. Use the tripod, cable release, and lens shade also.

Light

If possible, shoot on a hazy or lightly overcast day using the 81 B filter (example 8).

Example 8.--Insect galls photographed on an overcast day with an 81 B filter.

If you are shooting on a bright day, diffuse the sun through clear plastic held over the subject. If you are shooting close-ups and wind is a problem, use electronic flash (example 7). When using flash, try to use it at a 45° angle to the surface of the leaf to avoid glare.

Composition

Try not to divide the frame in half with the center vein of the leaf. Try to place the diseased part of the leaf about 1/3 of the way in from the edge of the frame and away from the exact center (example 7).

Notes

----- Take the exposure reading directly from the foliage.

----- Movement is the worst problem, try to shoot on a calm day if possible.

----- If necessary, collect the subject and photograph it in the studio.

----- Watch for shiny, hot spots, sometimes a polarizing filter will remove them, if not, change camera position.

PHOTOGRAPHING AN ENTIRE TREE

Equipment

For distant trees, use the zoom lens at whichever focal length it takes to make the tree the dominant part of the photo (example 9). For a close tree, a 50mm lens can be used. For a root sprung tree or broken tree, use the wide-angle lens placing the roots in the foreground for emphasis (example 10). Use the tripod, lens shade, and cable release.

Example 9.--Tree photographed using a zoom lens (printer cut off the top of the tree).

Example 10.--Uprooted tree taken with a wide-angle lens.

Light

If the tree blends into the background, use early morning or evening directional light or back lighting to isolate it from the background. If isolating it from the background is not a problem, light overcast or even bright sun can be used (example 11).

Example 11.--Tree photographed on an overcast day.

Composition

Avoid dividing the frame in half with the horizon. Avoid dividing the frame in half vertically if the tree is tall and narrow. Try to place the tree slightly above or below center.

Notes

----- If possible, try to photograph trees which are somewhat isolated.

----- Watch out for trees which blend in with the background, directional light can prevent this.

----- Watch for lens flare when shooting into the sun.

----- When shooting against the sky, try to do it against a blue sky.

PHOTOGRAPHING A STAND, PLANTATION, HABITAT OR NURSERY

Equipment

Use either the 50mm lens or the wide-angle lens. The wide-angle will change perspective and make the stand look larger and more spacious than it normally appears (example 12). The 50mm lens will emphasize a section of the area being photographed (example 13). Use the tripod, lens shade, and cable release.

Example 12.--Nursery photographed using a wide-angle lens.

Example 13.--Stand photographed with a 50mm lens.

Light

When photographing a very young nursery or a habitat with a few scattered trees, light overcast is best but bright sun is acceptable (example 11). When photographing a stand of trees or woods of any kind, use only diffused light (example 13). If it is overcast, use the 81 B filter. Morning and evening light are also acceptable.

Composition

Try to avoid dividing the frame in half with either the horizon or a dominant tree in the foreground. Make the photo from an elevated view if possible (example 14).

Example 14.--Area photographed from an elevated view.

Notes

When using the wide-angel lens, do not tilt the camera up or down or the vertical lines will converge. Raise the entire camera up or down to compose the photo.

HELPFUL HINTS FOR CLOSE-UPS

----- Longer focal length lens (100-200mm), when used with extension tubes or a bellows, will help eliminate background distractions and delineate the subject better.

----- When using a 50mm lens with 50mm or more of extension, it is important to use it mounted in reverse position.

----- When taking a light reading, be sure to use an eyecup and prevent any light from entering the viewfinder.

----- If your camera does not automatically adjust the f-stop, take the meter reading with the lens wide open, then adjust the f-stop and shutter speed combination desired.

----- Under dim light conditions, set the ASA dial to 1600, then interpolate back to your proper ASA rating (each time the ASA doubled, increase the exposure 1 stop).

----- When photographing medium size subjects with natural light, try to do it on a lightly overcast day (example 15).

----- When photographing small subjects such as fruiting bodies on a sunny day, use reflectors to fill in the shadows.

----- For maximum sharpness, use a heavy tripod and lock the mirror upon the camera.

Example 15.--Fruiting body photographed on overcast day.

SUGGESTED READINGS

BLAKER, ALFRED A. 1975. Field photography: Beginning and advanced techniques. W. H. Freeman and Company, San Francisco. 450 pp.

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